

# MICHEL SALOMON / FUTURE LIFE

*Translated by Guy Daniels*

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H.L. A preventive medicine for all would be possible if the end of each individual were integrated into that of the species; that is, if there were no subsystem that could be privileged at the expense of others. Once an entire population is vaccinated, you can very well risk not getting vaccinated. You have nothing to fear. That example, which is a bit too simplistic, can be extended to other realms. There will always be individuals who will find good reasons for not getting in line, for not being subjected to coercion. In that event, they must be convinced with arguments that are sound, not just emotional. The important thing is to offer convincing, substantiated proofs that prevention is indispensable. Prevention as it is conceived today is necessarily bureaucratic, constraining, and coercive. It is coercive in that people say: "We technocrats know what is good for you. Have faith in us." And people notice that the technocrats are wrong, that they make bad mistakes because their views grow out of self-interest, and then no one trusts them anymore. Preventive medicine should be social medicine—medicine that builds new human relations.

One of my latest books is called *Inhibition of Action*. In that book I show, with serious, substantiated arguments, that all pathology depends upon the inhibition of action, and that our modern societies increase the inhibiting factors every day. Inhibition of action in the search for pleasure leads to the destruction of biological equilibrium. A new structure of our inter-individual, inter-group, and international relations, a social approach to health, should be the basis for the preventive medicine of tomorrow. It would no longer be coercive, and would have no need to be, because it would not be imposed on people. It would allow for a broader approach to man in his environment.

M.S. In other words, health would be happiness and not the contrary, as the popular adage goes.

H.L. If you like, yes, that's the idea. But I would add that you won't see it happen any day soon.

## JACQUES ATTALI

### Medicine Under Prosecution

"Ein Wunderkind," the Germans would say—a child prodigy. At less than forty years of age, Jacques Attali is an economist of international reputation, a professor, a political adviser much heeded by the Socialist Party, and a versatile writer—the author not only of theoretical works in his own discipline but of noted essays in such various fields as politics, music, and, recently, medicine. The book that he published in the fall of 1979, *The Cannibalistic Order or the Rise and Fall of Medicine*, refueled the debate in France not only about the therapeutic act but about all the existential problems, from birth to death, that underlie medical care in the West.

What makes Attali run?

For his friends, so much energy expended in so many directions at once is disconcerting. For his enemies—and he has many of them, because of his political opinions, despite his amiable personality—this very gifted man is suspect. Rooted in the soil of reason, of measure, of the "juste milieu," the establishment has always been distrustful of intellectuals.

Jacques Attali, with his excesses, his outrageousness, his constant, feverish questioning, is no doubt disturbing. But in these times of crisis, don't we do well to be more "bothered" than reassured?

M.S. Why have you, an economist, taken such a passionate interest in medicine, in health?

J.A. In studying the general economic problems of Western society, I found out that health costs are among the main factors in the economic crisis. The production and maintenance of consumers costs a lot—even more than the production of the commodities they consume. People are produced by the services they render one another, especially in the field of health, where economic productivity is not growing very fast. The "productivity of the production of machines" is growing more rapidly than the relative productivity of the production of consumers. That contradiction will be eliminated as health and educational systems become more commercialized and industrialized. One look at our economic history and it's easy to see that our society is, more than ever, transforming craft activities into industrial activities, and that a growing number of services are becoming mechanized.

The confluence of these two questions leads one to ask: Can medical care, too, be produced by machines that will one day replace the doctor?

M.S. That question seems a bit academic, theoretical. . . .

J.A. Of course. But it goes a long way toward explaining the present crisis. If medical care could, like education, be mass-produced, the economic crisis would soon be resolved. This is somewhat the viewpoint of the astronomer who says: "If my reasoning is good, there is a star there." If this reasoning is accurate, and if our society is coherent, the logical conclusion is that, just as other functions have been devoured by the industrial apparatus in the earlier phases of the crisis, so medicine is becoming a mass-produced activity, which leads to the metaphor.

Doctors are being replaced by prosthetic devices whose role it is to repair bodily function, restore it, or take its place. If the prosthesis tries to do those things, it behaves as the organs of the body do, hence becoming a copy of one of the body's organs or functions. Such devices would thus be objects destined to be consumed. In economic language, the metaphor is clear: it's cannibalism. The body is consumed. Beginning with this metaphor (and I've always believed it was the source of knowledge) I asked myself two questions. First, is cannibalism a possible form of treatment? Second, does there exist a con-

stant in the different social structures such that an accepted kind of cannibalism, dissociated from one's experience of it and reduced to the lowest common denominator, would be found again in therapeutic behavior?

First, cannibalism can be seen, on a wide scale, as a basic therapeutic strategy. Second, it seems that all strategies for healing a disease consist of a series of operations carried out by the body itself but also by cannibalism, and that one finds in all these strategies the following: selecting the signs that one is going to observe; monitoring them; denouncing what is going to break the order of those signs, what one calls Evil; negotiating with Evil, separating Evil from the rest. All healing systems employ these operations: selecting the signs, denouncing the Evil, watching, negotiating, separating. These different operations are equally applicable to political strategy: selecting the signs to be observed; watching them closely; denouncing the Evil, the scapegoat, the enemy; and driving him away. There are very profound connections between the strategy followed to combat an individual Evil and the strategy employed against a social Evil. This is what made me think, basically, that the distinction between social Evil and the individual Evil was not a very clear one. These various fundamental operations apply to different historical periods, to different conceptions of disease, of Evil, of power, of death, of life, and thus of what identifies the Evil—and effects the separation. In other words, the operations and the roles are the same, but the actors who play those roles are different. And the play does not always last the same length of time.

M.S. From that to a theory founded on historical or mythical cannibalism. . . . Your essay upset and shocked not just doctors but the patients that we all are, potentially. In short, public opinion. . . .

J.A. That essay tries to do three things. First, to recount an economic history of Evil—a history of its bearing on disease. Second, to show that there are, in a way, four dominant periods and hence three great crises between which the see-sawings of the system are structured, and that each see-saw motion affects not only the healer but the very conception of life, death, and disease. Third, to show that these see-saw motions concern the signs and not the strategy, which remains cannibalistic, and that in fact we begin with cannibalism only to return to it. In short, industrial history can be interpreted as a machine for translating basic cannibalism—the first relation to Evil, wherein people eat people—into industrial cannibalism, where people become commodities that eat commodities. Industrial society would appear to function like a dictionary going through three different stages of translation

and thus resulting in intermediate languages—in a sense, four major languages. First there is the basic order, the cannibalistic order. It is here that we find the first gods appearing as cannibals; and in the myths that follow, historically, the cannibal gods eat one another. Then it becomes frightful for gods to be cannibals.

In all the myths I have studied, within different civilizations, religion serves to destroy cannibalism. For cannibalism, Evil is the souls of the dead. If I want to separate the souls of the dead from the dead, I must eat the bodies—because the best way of separating the dead from their souls is to eat their bodies. Thus, the idea of separation is fundamental to cannibalistic consumption. That's the point I wanted to make: Consumption is separation. Cannibalism is a formidable healing force for the power structure. Then why isn't cannibalism practiced anymore? (What I am about to say is evident in the myths. And in my essay I put forth an interpretation both of Girard's work on violence and of Freud's *Totem and Taboo*, in which he sees the totem and the totemic meal as basic, with the totemic meal disappearing into sexuality.) Well, from the moment I say that eating the dead permits me to live, I'll find some to eat. Thus, cannibalism is healing, but it also leads to violence. And it's in this way that I try to interpret the transition to sexual taboos, which are always the same as cannibalistic taboos. Because it's evident that if I kill my father or my mother or my children, I'm going to stop the reproduction of the group. And yet they are the easiest to kill, since they live next to me. Sexual taboos are secondary to food taboos.

Next comes ritualization, the religious dramatization of cannibalism. In a sense, one delegates, represents, sets the scene. Religious civilization is a dramatization of cannibalism. The signs one observes are those of the gods. Illness is possession by the gods. The only sicknesses one can observe and cure are those of possession. Healing, finally, is expelling the Evil—and the Evil, in this case, is the Devil; that is, the gods. And the principal healer is the priest. There are always two healers on duty. The denouncer of Evil and the separator—people we will later encounter under the guises of physician and surgeon. The denouncer of Evil is the priest, and the separator is the practitioner.

On the one hand, I tried to show that Christian ritual is basically cannibalistic. The texts of St. Luke on "the bread and wine," which are "the body and blood of Christ"—and which, if one eats them, give life—are cannibalistic texts and, of course, therapeutic. There is a medical, and at the same time cannibalistic, reading of those texts that is fascinating.

I next tried to recount the history of the Church's relation to healing, and to show little by little—around the twelfth and thirteenth centuries—the emergence of a new system of signs. Illnesses come not only from the gods but from the bodies of humans. Why? Because the economic organization is beginning. People are emerging from slavery. The dominant diseases are epidemics, which begin to circulate like men and commodities. The bodies of the poor transmit disease, and correlation between poverty (which didn't exist before, because almost everyone was either slave or seigneur) and disease is absolute. From the thirteenth to the nineteenth century, to be poor or sick meant the same thing. Hence, the political strategy with regard to the poor and the sick was the same. When one was poor, one got sick. And when one was sick, one got poor. Disease and poverty did not yet exist. What did exist was to be poor and sick. And once the poor or sick man was designated, good strategy consisted in separating him from others, containing him, not healing him but destroying him. In French texts, this was called "confining"—*enfermement* in Foucault's vocabulary. People were confined in various ways: the quarantine camp, the lazaretto, the hospital, and, in England, the workhouse. The Poor Law and charity were not means of helping people but means of designating them as such, and containing them. Charity was merely a form of denunciation.

M.S. The policeman took the place of the priest as therapist.

J.A. That's right. Religion withdrew and assumed power elsewhere because it could no longer claim the power of healing. Of course there were already doctors, but their role was limited to providing consolation; for proof of this, we have only to remember government authorities, very astutely, still did not recognize the doctors' diplomas. The political power structure considered its principal therapist the policeman, not the doctor. For that matter, in the Europe of the time, there was only one doctor for every 100,000 people.

But now I come to the third period, when it was no longer possible to confine the poor because they were too numerous. They had, on the contrary, to be supported and maintained because they had become workers. And so they stopped being bodies and became machines. The signs one observed were those of machines. Illness, Evil, took the form of a breakdown. Clinical language isolated and objectified the Evil to an even greater extent. Thus, Evil was designated, separated, and expelled.

During the entire nineteenth century, with public hygiene as a new means of control, the new binds of repairs, and the new distinction



between doctor and surgeon, the policeman and the priest were replaced by the doctor.

M.S. And today it's the doctor's turn to fall into the trap. . . .

J.A. Today, the crisis is threefold. On the one hand, as in the preceding period, the system can no longer assure its own proper functioning. Today, for the most part, medicine is incapable of treating all diseases because it costs too much.

On the other hand, there has been a loss of faith in the doctor. People have much more faith in quantified data than in the doctor.

Finally, we witness the emergence of diseases and forms of behavior that no longer respond to the methods of classical medicine. These three characteristics lead to a kind of natural continuum that moves from clinical medicine to prosthesis. And I have tried to set forth the three overlapping phases in that transformation.

In the first phase, the system tries to endure by monitoring its financial cost. But that leads to the necessity of monitoring behavior and hence of defining norms of health and activity to which the individual must adhere. Thus the notion of an economical profile of a healthy life.

From that, we go on to the second phase, which is that of self-diagnosis of illness (which corresponds to the designation of Evil) thanks to the tools of behavioral self-control. The individual can thus conform to the norm and become autonomous with respect to his illness.

The principal criterion of behavior was, in the first order, to give meaning to death; in the second order, to contain death; in the third order, to increase the hope of life; and in the fourth, that in which we live, it's the search for an economical profile of a healthy life.

The third phase is marked by the appearance of prosthetic devices that make it possible to designate the illness (Evil) in an industrial context. Thus, for example, electronic medication such as the pill coupled with a microcomputer makes it possible to release in the body, at regular intervals, regulating substances.

M.S. In short, health care, with the appearance of these electronic prosthetic devices, will be the new driving force of industrial expansion. . . .

J.A. Yes. In conclusion, all the traditional concepts disappear: production and consumption disappear, life and death disappear, because the prosthetic device makes death a fluid event. . . .

I believe that the important thing in life will no longer be to work but to be in a position to consume—to be a consumer among other machines of consumption. The dominant social science up to the present has been the science of machines. Marx is a clinician because he

designates the illness—the capitalist class—and eliminates it. In a way, he says the same thing as Pasteur. The dominant social science of the future will be the science of codes—data processing plus genetics. My book is a book about codes, because I try to show that there are successive codes: the religious code, the police code, the thermodynamic code, and today the data-processing code and what is called sociobiology.

M.S. Does your thesis lead to a concrete approach to medicine, even in the long run? Does it constitute the beginnings of concrete ideas by an economist and politician on the organization of the medical profession and medical practice?

J.A. I don't know. For the moment, I don't want to ask myself that question. I believe that the first thing I wanted to show—the only thing—was that healing is a process in full evolution toward a model of organization that has nothing to do with the present one, and that we have a choice between three types of attitude: to preserve the practice of medicine as we have known it; to accept its evolution and see that it is the best possible, ensuring equal access to prosthetic devices; or to rethink our view of illness entirely, in order to arrive at an acceptance of death and an awareness that the urgent thing is not to forget or delay or await death but to want life to be as free as possible. I think that people will eventually have to choose from among these three solutions; and I want to show that, in my opinion, the last one is the truly human choice.

M.S. That's social utopianism. It's sometimes dangerous to be utopian. . . .

J.A. Utopianism can take two different directions, depending on whether we are talking about utopia as a dream of an absolute, in which case the dream is one of eternity, or as something that has never taken place in which case we then try to see which type of utopia is most likely to be achieved. I believe that if we want to understand the problem of health care, we must realize that there are realizable utopias. The future is necessarily a utopia; and it's very important to understand that it need not be fraught with danger, because to talk about utopia means to accept the idea that the future has nothing to do with merely continuing present tendencies.

I would even say that all futures are possible but one: the continuation of the present situation.

M.S. Is the future you postulate one in which a whole panoply of drugs will help man tolerate his condition?

J.A. I'm frightened by the fascination with drugs that reduce

anxiety. People are trying to find ways to make anxiety bearable instead of trying to learn how to stop feeling anxious.

The medications of the future that are tied to behavior control could lead to political difficulties. It might be possible in fact to reconcile parliamentary democracy with totalitarianism. For totalitarianism to take hold, we would need only to maintain all the formal rules of parliamentary democracy but at the same time to generalize the use of those drugs.

M.S. Does that seem possible—an Orwellian 1984 based on a pharmacology that would control behavior?

J.A. I don't believe in the Orwellian model of technical totalitarianism with its visible and centralized Big Brother. I believe, instead, in an implicit totalitarianism with an invisible and decentralized Big Brother. Those machines that keep watch on our health, that we could use to our good, will enslave us for our good. In a way, we will undergo a gentle but permanent conditioning.

M.S. How do you envision twenty-first century man?

J.A. I believe that we must make a very clear distinction between two kinds of twenty-first-century man: the twenty-first-century man of the rich countries, and the twenty-first-century man of the poor countries. The former will certainly be a man much more anguish than he is today, but he will find the answer to the pain of living in passive flight, in antipain machines and anti-anxiety machines, in drugs; and he will try to live a commercialized form of the good life, no matter what the price.

But I am convinced that the great majority of people, who will know about machines and life-style of the rich but will not have access to them, will be very aggressive and violent. From that distortion will arise enormous chaos, which will be expressed either by racial wars or by the immigration into our countries of millions of people who want to share our way of life.

M.S. Do you believe that genetic engineering is one of the keys to the future?

J.A. I believe that in the next twenty years genetic engineering will be as banal, well known, and commonplace procedure as the internal combustion engine is today. The analogy is, in fact, particularly apt.

The internal combustion engine presented us with two options: either to favor public transportation and facilitate people's lives, or to produce automobiles—tools of aggressiveness, of consumption, of individualization, of solitude, of stockpiling, of desire, of rivalry. . . . The

second option was chosen. I believe that genetic engineering occasions the same kind of choice, and that unfortunately the second option will again be chosen. In other words, genetic engineering could pretty much create conditions under which humanity could either take responsibility for itself freely but collectively, or else devise a new commodity, genetic this time, made up of copies of people sold to people, of chimeras or hybrids used as slaves, robots . . .

M.S. Is it possible and desirable to live 120 years?

J.A. Medically, I know nothing about it. I've always been told that it is possible. Is it desirable? First, I believe that the industrial system in which we find ourselves no longer sees an increase in life expectancy as a desirable objective. Why? Because increasing life expectancy only makes sense if the human machine's threshold of profitability is similarly increased. But as soon as a person gets to be older than sixty or sixty-five, and his productivity and profitability begin to slip, he costs society dearly.

Hence, I believe that the very logic of the industrial society will require that the objective no longer be to prolong life expectancy but to see to it that man live in the best way possible—but with health care expenses as reduced as possible for the sake of the collective. Then we witness the emergence of a new criterion for life expectancy: the value attributed to extending life expectancy will not be as great as that placed on maximizing the number of years a person lives without illness, and particularly without hospitalization. Actually, from the viewpoint of the cost to society, it is much preferable that the human machine abruptly stop functioning than that it deteriorate very gradually.

This is perfectly clear if we remember that two-thirds of all health-care expenses are incurred during the last months of life. Likewise, all cynicism aside, health-care expenses would not reach a third of the present level (175 billion francs, or about \$35 billion, in 1979) if people all died in automobile accidents. We have to recognize that logic no longer resides merely in increasing life expectancy but rather in increasing life expectancy *without illness*. I think, however, that expanding life expectancy remains a fantasy that serves two purposes, the first of which is mainly a question of self-preservation of the power elite. The more totalitarian or centralized societies tend to be run by "old" men, and are in fact "gerontocracies." Secondly, capitalist society hopes to make old age economically profitable by making old men solvent. Right now the elderly are a "market," but not a solvent one.

This all fits in very neatly with the view that man today is no longer important as a worker but as a consumer (because he is replaced by

machines in the workplace). We see very well how the big pharmaceutical companies operate today in relatively egalitarian countries where retirement is adequately financed. They take aim at their target and favor geriatrics, at the expense of other fields of pharmacological research, such as tropical diseases. Thus, the technology of retirement determines the acceptability of increasing life expectancy.

For my part, as a socialist, I am against the increasing life expectancy, because it's a decoy—a false problem. I believe that posing this type of problem enables us to avoid more essential questions such as how we go about freeing our time in the present. What is the use of living 100 years if all we gain is twenty years of dictatorship?

M.S. The world to come, "liberal" or "socialist," will need a revamped, "biological" morality—an ethical code to cover cloning or euthanasia, for example.

J.A. Euthanasia will be one of the essential instruments of future societies. Socialist logic is based on freedom, and the exercise of the most basic freedom is suicide. The right to commit suicide, directly or indirectly is an absolute value in this type of society. In a capitalist society, machines for killing, prosthetic devices that make it possible to eliminate life when it has become too unbearable or too expensive to sustain, will be used routinely. Euthanasia, whether an expression of freedom or a commodity, will be one of the givens of the future.

M.S. Will the citizens of tomorrow be conditioned by psychotropic drugs and subjected to manipulations of the psyche? How can we guard against this?

J.A. The best way to protect ourselves is to educate ourselves and increase our scientific store of knowledge. We will have to ban a great number of drugs. But perhaps the point of no return has already been passed. . . .

Isn't television, for that matter, an abused drug?

Hasn't alcohol always been an abused drug?

The worst drug is the absence of culture. People want drugs because they have no culture. Why do they seek alienation by means of drugs? Because they have become aware of their impotence, their inability to live, and that impotence is expressed concretely in a total refusal of life.

An optimistic bet on man would be to say that if man had culture, in the sense of tools for thinking, he would be able to escape solutions that only aggravate and deepen that impotence. To grasp this Evil by the root is to give people a formidable instrument of subversion and creativity.

I don't believe that the banning of drugs will suffice. If we don't

attack the problem at its root, we shall inevitably become enmeshed in the machinery of the police state, and that's worse.

M.S. How are we going to handle mental illness in the future?

J.A. The evolution of medical practice as regards mental illness will occur in two phases. In the first phase we will still rely on drugs, psychotropic ones, which have meant real progress in the treatment of mental illness during the past thirty years. In the second phase, and for economic reasons, we will begin to rely more on electronic means of treatment—either to control pain (biofeedback), or provoke psychoanalytic dialogues (a data-processing system). This will then lead to what I call "the explicitation of the normal." That is, the electronic apparatus will make it possible to define the normal with precision, and to quantify social behavior, which will then become economically consumable because the means and criteria for conformity to norms will exist. In the long run, once a given mental illness is conquered, the temptation to conform to a "biological norm" will condition the functioning of social organization.

Medicine reveals to us the evolution of a society that will orient itself toward a decentralized totalitarianism. The desire, conscious or unconscious, to conform as much as possible to social norms is nothing new.

M.S. Will forced normalization govern all the realms of life, including sexuality, since science now makes possible the almost total dissociation of sexuality from conception?

J.A. I think that we will go very far in that direction. The production of people is not yet a market like any other. But following the logic of my general reasoning, I can't see why procreation should not become one. The family, or the women, thus becomes a means of production of a particular object, the child. One can, in a way, imagine "wombs for rent"—something already possible, technically. This notion corresponds perfectly to an economic development in which the woman or the couple will take part in the division of labor and in general production, making it possible for people to buy children as they buy peanuts or a television set.

If, on the economic plane, the child is a commodity like any other, society will in turn consider it such, but for social reasons. The survival of the collective depends upon a sufficient pool of people. If, for economic reasons, a family does not want to have more than two children, the interests of the collective will be at risk. Thus, we get an absolute contradiction between the interests of the family and those of society. The only way to solve the contradiction is to allow society to buy children from the family. I'm not referring to family subsidies, which are

feeble incentives. I mean that a family would agree to have lots of children if the state would guarantee it both the payment of progressive substantial allowances and specific reimbursement of all material expenditures for each child. Under such a plan, the child would become a kind of medium of exchange between the individual and the collective.

What I have just said is not something I take lightly or view complacently. It's a warning. I believe that the world we are building will be so frightful that it will mean the death of humankind. So we have to be prepared to resist it; and it seems to me today that the best way to do so is to understand and engage in the battle in order to avoid the worst. That's why I take my reasoning as far as I can.

M.S. Resist what, since you foresee a world of prosthetic devices?

J.A. The prosthetic devices I foresee are not mechanical but will be used to combat chronic afflictions linked to tissue degeneration. Cellular engineering, genetic engineering, and cloning are preparing the way for the development of prosthetic devices that will in effect replace defective organs.

M.S. The increasing role of data processing in society calls for a reevaluation of ethics. Do you see this increased reliance on data processing as a threat to man's freedom?

J.A. It is clear that all the talk about preventive medicine, the economics of health care, and good medical practice will make it necessary that each person have his or her medical record on tape. For epidemiological reasons, all such dossiers will be centralized in a computer to which doctors will have access. The question arises: Will the police have access to those records too? Sweden has this kind of sophisticated system but does not have a dictatorship while certain other countries do not have this record-keeping system but do have dictatorships. In the face of new threats, we must know how to create new procedures. Democracy has a duty to adapt to technical evolution. The combination of old constitutions and new technologies may lead to totalitarian systems.

M.S. One of the commonest predictions for the future is that man will be able to exercise biological control over his own body thanks to microprocessors, among other things.

J.A. That control, which already exists, in the form of pacemakers for the heart, and likewise for the pancreas, should ideally be extended to apply to the elimination or reduction of pain. Researchers predict the perfection of little implants capable of releasing, in the tar-

get organs, hormones and active substances. If one's aim is to prolong life, such progress is inevitable.

M.S. It seems that we are leaving an era of physics to enter an era of biology—something close to a panbiology. Do you agree?

J.A. I believe that we are leaving a world controlled by energy to enter a world of information. If matter is energy, life is information. That's why the major product of tomorrow's society will be living matter. Thanks in particular to genetic engineering, new therapeutic, nutritional, and energy tools will be developed.

M.S. What is the future of medicine and medical power?

J.A. In a rather brutal way, I would say that just as washerwomen have been displaced by advertising images of washing machines, so doctors integrated into the industrial system will become the developers of biological prostheses. The doctor as we know him will disappear, yielding his place to a new social category living off the prosthetics industry: inventors, salesmen, installers, and repairmen—much as exist now to keep those washing machines in running order. What I have to say may seem surprising. But I wonder how many people are aware that the main enterprises interested in prosthetic devices are the big automobile manufacturers like Renault, General Motors, and Ford.

M.S. In other words, we'll no longer have any need for internists because "normalization" will be effected by a kind of preventive medicine, self-managed or no, but in any case "controlled." But how can we accomplish this without resorting to force?

J.A. The appearance on the market of implements for medical self-monitoring will create a preventive-medicine mentality. People will adapt to conformity to the norm. Preventive measures will not have to be forcibly imposed; people will embrace them to achieve social acceptance. But we must not lose sight of the fact that the most important thing is not technological progress but the highest form of commerce among men, represented by culture. The shape society takes in the future will be a function of our capacity to master technological progress. Will we dominate it, or be dominated by it? That's the question.

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to apply biological principles for the improvement of their minds as well as their bodies, a process that will liberate individuals from "unnecessary constraints of civilization and the environment." For immunologist Robert Good the "golden doorway of cancer immunotherapy is open"; for biochemist Hans Krebs, however, the "cure" lies rather in prevention. Professor Erwin Chargaff, an admitted pessimist, sees the changing conditions under which man lives as responsible for his weakening capacity for self-expression, for the lack of good art and literature. In his view modern science is superficially involved in explaining instead of in understanding. "What is in store for us is not a rose garden...[the future's] *modus vivendi* seems to be genetic monstrosities, the atom, euthanasia...man as merchandise."

In all, eighteen life scientists, including Konrad Lorenz, André Courmand, Niko Tinbergen, and Jonas Salk, express their thoughts on such topics as genetic engineering, psychotropic drugs, longevity, public health, euthanasia.

The apocalypse-or-utopia question remains open; it is not one that scientists alone can answer. But implicit throughout these dialogues is a plea that we all add thought to our hopes, replace apathy with alertness, be motivated by a desire to understand and be involved. Henri Laborit says it: "Let us add life to years instead of just years to life."

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